NIST-GCR-90-572

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CONDUCT AND ADMINISTRATION OF U.S. PARTICIPATION AND LEADERSHIP IN INTERNATIONAL STANDARDIZATION, TESTING, AND CERTIFICATION IN THE DECADE OF THE 1990s

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Prepared for
U.S. DEPARTMENT OF COMMERCE
National Institute of Standards
and Technology
Technology Services
Office of Standards Services
Gaithersburg, MD 20899

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Conduct and Administration of U. S. Participation and Leadership In International Standardization, Testing, and Certification In the Decade of the 1990s

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Background

The voluntary standards system that exists today began on recommendation of several members of the American Engineering Council of the Federated American Engineering Societies. In 1911,a Committee of the American Society of Mechanical Engineers took the first step by proposing a national "registration" of standards of technical and industrial groups. (A registry, not an organization). In 1916 the American Institute of Electrical Engineers (now IEEE) invited the American Society of Mechanical Engineers, American Society of Civil Engineers, American Institute of Mining and Petroleum and Metallurgical Engineers, and the American Society for Testing and Materials to join in setting up a national standards agency.

In 1918 the five societies organized the American Engineering Standards Committee. In 1919 governmental, industrial and insurance groups were added to the membership. In 1926, the AESC invited 20 national standards bodies to an international conference in New York leading to organization of the International Standards Association (ISA) which AESC joined upon completion of organization. In 1928 AESC became the American Standards Association (ASA) which name remained until 1966. The international structure was completed in 1931 when U.S. electrical work was placed under ASA through affiliation of the U. S. National Committee of the International Electrotechnical Commission (IEC). The USNC/IEC is the U. S. member of IEC. It remains affiliated with ANSI which provides membership dues support for both IEC and ISO.

Standards programs of industry and government were almost constantly under review and study between WWI and WWII, at which time the ASA literally went to "war" developing standards for the War Production Board and Office of Price Administration. After several conflicting study reports were issued the Secretary of Commerce, in 1960 requested the National Academy of Sciences to appoint a group to evaluate the functions and operations in the field of science and technology of the U. S. Department of Commerce. NAS appointed a committee of 10 scientists and engineers headed by Marvin J. Kelly, President of IBM. Of interest to the standards community was the observation that there was considerable confusion in the United States over standards and that "there were so many groups issuing and promulgating standards that one could conclude that in reality, the United States had no standards program." The Kelly Committee specifically recommended that the Secretary of Commerce take the leadership in initiating another study of standardization in the United States for the purpose of strengthening and unifying the standards and simplified practices program of the nation.

The LaQue Report of 1965. Acting on recommendation of the Kelly Committee the Assistant Secretary of Commerce for Science & Technology, in the Spring of 1963 formed an ad hoc Panel (of the Commerce Technical Advisory Board) on Engineering and Commodity Standards to review the U. S. national industrial standards program and make recommendations. He appointed Dr. Francis L. LaQue, vice president of the International Nickel Company as Chairman. Dr. LaQue had served as President of ASTM. He would subsequently serve as President of ANSI and ISO. The final LaQue Report was released February 2, 1965. In his letter enlisting the service of panel members the Assistant Secretary defined its mission as follows:

> *The purpose of the committee is to review the broad requirements for industrial and commodity standards in the United States...It will be important to give special attention to the relationship between the activities of the private standards groups and the Federal Government and to international standards problems.*

The LaQue Report recommendations ranged far and wide and were addressed to government, industry, ASA, technical societies, industry groups & trade associations. For purposes of this paper, the following recommendations are the most significant. Their importance lies in the fact that they were not effectively implemented. They beg to be redressed for the decade of the nineties. They are:

- Strongly recommended legislation to establish a national coordinating institution for voluntary standardization with international recognition.
- The Institute should have a Federal Charter.

- The Federal Government should officially recognize the Institute as the body responsible for representing the interests of the United States in international standardization.
- Government participation in the Institute should be through the Department of Commerce and the National Bureau of Standards (now NIST) which would be the channel for funds. The Government would be represented on the Board of Directors by representatives appointed by the President from government agencies concerned with standards.
- Funding for the Institute would be from four sources:
  1. Sales of publications and services
  2. Dues and contributions from industry and organizations
  3. Dues from participating memberships held by government having significant interest in standards, and
  4. Direct Financial Support from the U. S. Government

Introduction

1. Origin of the Study

It became apparent several years ago that the development of an internal European market with unified regulations and standards would have a significant impact on standards development, testing, certification, accreditation and quality assessment programs in the United States. Our principal concern at the time was how our programs could eventually access those of Europe and the more subtle concern over the sovereignty of our own national efforts which heretofore had pretty much enjoyed international de facto acceptance in many fields. From a professional standpoint we faced the distinct possibility of loss of hard won leadership at the international level to a block of the world's strongest, largest and most prolific national standards organizations, those concentrated in the European Community. Having been initiated into the cult of ISO Internationalism, and having experienced the rather heady results of a decade of GATT negotiation leading to the GATT Standards Code, we were hard put to accept that a Regional Group, the European Community might succeed in abrogating the key provisions of the Standards Code under cloak of Community immunity. Our loyalties to ISO and IEC and our chosen path to Global (barrier free) standards (GATT) caused a general U.S. over reaction to EC 1992, even in the face of its promise of easier access to the internal unified European market.

The organizational response in the U. S. to EC 1992 was unfortunately typical. It ran the natural course from appointment of high level task forces, preparation of press statements and resolutions, organization of conferences (if one could find open dates around the hundreds already booked) and, of course, missions to Washington (if one were not from Washington) or to Brussels (if one were from Washington). We all participated in a feeding frenzy of actions designed in some instances to impress our constituents with our energies and quick response to this newly recognized threat.

Government Action: Unlike some of the earlier reactions to new European initiatives the U. S. Department of Commerce took a rather calm, steady and intelligent course to assist commerce and industry and their voluntary organizations to better understand the consequences of, first the EC approach to standards and later to the Global Approach to testing and conformity to mandatory as well as voluntary standards.

The U. S. was fortunate to have the combined experience of the National Institute of Standards and Technology (NIST) and International Trade Administration, and particularly the Office of European Community Affairs to analyze the situation, sift through the myriad of advice and criticisms of friends and foes and ultimately call public hearings to obtain information from affected interests.

(It was at the time of the hearings that I interviewed Dr. Stanley Warshaw, Associate Director of NIST for Industry and Standards. I was seeking information for an international research report for which I am a contributing editor. He turned the tables on me and suggested that NIST would be interested in having my views on U. S. participation and leadership in international standards, testing and certification. He was particularly concerned over the most effective type of organization that might be eventually recommended. He made an offer which no one could refuse—an opportunity to make use of my 22 years as President of ANSI along with even more years of first hand experience in international negotiations of technical challenges. This came with the guarantee that whatever I wrote NIST would publish, after suitable disclaimer, for public review and comment.)

2. Design of the Study

The study is designed to provide NIST with a personal perspective of what the author believes to be the essential elements for conduct and administration of U. S. participation and leadership in International Standardization, Testing and Certification in the decade of the 1990s. It is based upon 22 years of experience in all aspects of international programs relevant to standards development and application of standards to testing, certification, accreditation, and related topics.

To obtain a broad base of impartial recommendations and suggestions, advice was sought from the leadership of U. S. standards, testing and certification organizations, foreign national groups with which the national coordinating body interacts, and international organizations. The organizations contacted were, in alphabetical order: Air

Conditioning & Refrigeration Institute, American Council of Independent Laboratories, American National Standards Institute, American Society of Mechanical Engineers, American Society for Testing and Materials, Association for Advancement of Medical Instrumentation, Association for Computing Machinery, Computer & Business Equipment Manufacturers Association,Electronic Industries Association, Exchange Carrier Standards Association, The Marley Organization, National Electrical Manufacturers Association, Underwriters Laboratories, U. S. National Committee of IEC, National Standards Bodies of: Australia, Canada, France, Germany (FR), United Kingdom, Canadian Standards Association, International Organization for Standardization (ISO).

In each case those being interviewed or invited to respond by mail were asked to comment on the scope of the investigation, i.e, what, if anything, new was felt necessary in existing programs or operations; their views on the future role of government in standards, certification and testing; their reaction or opinion on having a Standards Council of the United States of America to provide the government role (if any) and their individual views on the health and efficacy of the present system for national standards coordination and international (non-governmental) interface. Recommendations for increasing and improving U. S. participation and Leadership were encouraged.

3. Results of Inquiries and Interviews.

The unanimous suggestion of the participants was that the topics of standards and application of standards (testing, certification and related topics) should be treated separately. It was felt that while the standards development is of critical importance, it pales by comparison with the multitude of problems and uncertainties facing U. S. product manufacturers and testing, certifying and accrediting bodies in international markets.

Respondents felt that EC 1992 was a major challenge to Government and private sectors. Most felt however that it would be wrong, or at least counter productive, to make changes in U. S. programs simply to meet the demands of the European Communities, especially when they are still evolving. Preference was expressed for development of global solutions rather than bilateral or regional ones that did not include all the major trading nations.

It was recognized that the Federal Government must conduct international government to government negotiations and must also assume an increasingly pro-active role in development of policies plans and programs in the private sector that have substantial public interest. Government's role should be that of an equal participant, not a dominating one.

Issues surrounding U.S. product testing, conformance to standards, laboratory accreditation, acceptance of test results, and quality assessment are rapidly becoming the key to competitive domestic and international trade and commerce. The problem is not particularly the functions involved but rather the fact that the United States lacks any effective infrastructure for dealing with such complex competitive topics. *Most of the participants in the study recommended that there should be early Congressional action to establish one.*

The overwhelming opinion of the participants was that the focal point of the U. S. infrastructure should be a statutory quasi-government corporation. Ideally it would serve the dual functions of (1) continuing to meet national needs for certification, testing and related programs in the global market place, and (2) provide interface with existing international programs and emerging regional programs such as those of the European Communities.

The need for a government-based focal point for testing, certification, and accreditation in the U.S. has become a major concern of the Europeans, Canadians, and the Asian countries, all of which we have been contesting for equal trade policies. The Canadians in presenting their views on the Standards Council of Canada were also rather blunt in asking when the United States would take action to provide them with a single point in government where they could come to discuss reciprocal laboratory accreditation, and cases where Canadian laboratories have failed to receive accreditation by U. S. Government officials. The Canadians feel that the Standards Council of Canada offers more in the way of acceptance by provincial authorities as a result of SCC accreditation than our NVLAP program offers. In addition OSHA accreditation is apparently being delayed due to intervention by USTR, based on its views of equal treatment of U.S. and Canadian labs, a practice to which the U. S. Government has strongly protested to the Commission of the European Communities. The British Standards Institution has decried the lack of a U. S. focal point and characterized the U. S. system of approvals as a *"Star Spangled Barrier to trade with the rest of the world."*

Government funding of standards and testing and certification programs received a mixed review. There are those who have stated on many occasions that they lack the financial resources to participate actively at the international level. Others say that with government funding comes domination and prefer to leave the situation as it now is, one of primarily private funding.

Testing and Certification normally attracts adequate financing. Perhaps it is the threat of loss of market which is a more immediate problem than standards which are often long term. There was a strong case made for government assumption of either an equal share or the full amount of the dues subscriptions to ISO/IEC on the basis that these groups serve the national need for international standards. Such an assumption would need to be accompanied with a system for government overview, audit and negotiation and could not become an uncontrolled subsidy.

Standards Development. There remains a virtually unanimous view that the voluntary decentralized standards system of the United States is the finest in the world. Over the last 25 years since the LaQue Report helped launch the American National Standards Institute (ANSI) remarkable progress has been made. Productivity has skyrocketed. Due Process and Public Review which were initiated and launched in 1970 have received the support of Federal Trade Commission, Justice Department and Federal Communications Commission. They (and other public policy aspects of ANSI) have been through the crucible of Congressional hearings and a seven-year long FTC investigation. No case has been made nor will one be made for imposition of Government regulation or control. The underlying strength of the system remains the standards developing programs of the nation's engineering and technical societies. Of the "big four developers," ASME, ASTM, and IEEE are the principal founders of ANSI. The fourth, SAE, while not in at the founding, is a strong supporter.

In the Federal Register of November 27, 1989 a notice appeared announcing that the National Institute of Standards and Technology (NIST) would hold public hearings beginning on April 3, 1990 to gather information, insights, and comments related to improving U. S. participation in international standards-related activities and to possible government actions. On December 20, NIST dropped the other shoe by expanding the scope of the hearing to " government-private sector interactions" and introducing, as *one possible model*, something like the Standards Council of Canada. The U. S. version is dubbed SCUSA and has aroused considerable animosity in the standards community. This is unfortunate since it tends to negate any rational debate as to the present and future credibility of the in-place standards coordination system.

Interviews and inquiries here and overseas brought no support (even from Canada) for U.S. adoption of such a Draconian measure, even though there were only a very few who expressed complete satisfaction with the status quo. The crescendo of vitriolic opposition to the hearings, however, appears to thinly disguise a self-satisfaction and unwillingness to enter into a public forum and debate on the issues involved. It must be considered that it has been a full 25 years since the last public review of the U. S. voluntary national-international systems. Furthermore, the DoC Technical Advisory Board and LaQue Panel had no experience with the rapidly advancing high technology standards which now challenge standards developers. The topic of international trade was almost incidental to that study. International communication, electronic publication and distribution have changed the financial outlook of voluntary organizations which for more than 100 years have lived on the largess of standards publications. Even the most sacred of vestal concepts, Antitrust and Copyright which have served as selectively invoked prohibitions against new programs appear to be under serious review, by both industry and their voluntary organizations.

A primary conclusion reached as the result of the investigation was that the Administration and the Congress should begin serious consideration and dialogue leading to enactment of legislation to establish separate *study commissions* on standards development, and the combined functions of testing, certification, accreditation and quality assessment, as follows:

1. A National Commission on the U.S. Standards System and its participation in International Standardization.
2. A National Commission on establishment of a focal point organization for U.S. testing, certification, accreditation, and quality assessment. The focal point would also provide for interface with international programs as well as regional ones such as those of the European Communities.

Recommendations

National Commission on the U. S. Standards System

Time alone may well justify appointment of an independent study commission on the U. S. voluntary standards system. 25 years is a long time and many important changes have occurred since 1965. Reviewing broad requirements for standards, assessing the efficacy of activities and programs designed to meet those existing needs, and reporting its recommendations to the Congress and the President will be an awesome responsibility and one which the Commission will need to take seriously.

There are still missing elements from the LaQue Report, most notably the granting of a Federal (Congressional) Charter to the national coordinating organization setting forth its responsibilities and authorities. Responsibilities of standards developers, trade and technical organizations, industry and government, the interdependent parts of the whole system will clarify and strengthen the roles of each.

A Congressional authorization to represent the interests of the United States in non-governmental international standards will, for the first time, place the U.S. coordinating institution on an equal basis with similarly recognized and authorized organizations from other countries.

Delineation of the individual and collective roles and reponsibilities of the private sector coordinator and the Department of Commerce/National Institute of Standards and Technology should resolve the conflicts and turf arguments which are all too obvious at the present time.

It would seem possible that cooperation and joint representations to foreign public as well as private authorities jointly rather than in separate teams would strengthen the credibility of U.S. representation when issues escalate to the point that consensus solutions are not possible.

Funding, the continual bane of all private voluntary organizations should be easier. At least some if not all the fear of government domination through funding should disappear as trust and confidence becomes stronger.

The study commission will allow ANSI's founding societies and contributing organizations an opportunity to be heard, which some have expressed serious reserve about under the current structure. A balance of interests between scientific, technical and commercial—associations and societies—with perhaps less dependence on large contributors should be possible under the guidance of an independent study commission

Finally, a National Study Commission with a one-year mandate should relieve the need apparently felt by some to replace the national coordinating organization with some new government agency which would largely replace the voluntary system.

The proposed National Commission could be modeled after the National Commission on Product Safety legislation enacted in 1967. P.L. 90-146. Unlike the former LaQue Panel, the Commission would be authorized by Congress and would report its findings to Congress and the President of the United States.

The Commission should have a life of not more than one year. It should have a balanced membership broadly representative of primarily affected interests, including, but not limited to standards developers, technical and engineering societies code authorities, government procurement and regulatory agencies, international trade interests and industrial groups.

The Commission should have a budget sufficient to pay for its administrative expenses and the travel and per diem expenses of its members and senior staff. It should be encouraged to hold hearings, seminars, and conferences throughout the United States with particular attention to locations of voluntary standards developing organizations and affected industrial sectors.

For support and administration and close liaison with the government's Interagency Committee on Standards Policy, the Commission should be attached to the U. S. Department of Commerce and its National Institute of Standards and Technology.

U. S. Focal Point for Testing, Certification and Accreditation

If the functions of product testing, certification, conformance to standards, accreditation of testing laboratories and certification programs were carried out only in the private sector between contracting parties; if mandatory programs for worker and public safety, health facilities and services and environmental protection did not require enforcement and monitoring by public officials, there would be no need, nor recommendation, that a focal point in government be established for these functions.

In the last 25 years, since the last public review of standardization and related functions was completed, the Congress has enacted a host of safety and health legislation, virtually all of it enforced through application of and adherence to mandatory standards. In public safety and health, the voluntarily derived installation codes, such as the Electrical, Elevator, Boiler and Pressure Vessel, Gas and Fire Codes are enforced by local and state inspectors who rely absolutely on national consensus codes and underlying standards.

Communications, broadcasting, transportation, information and telecommunication networks, which we take for granted, serve us well every day, at remarkably low cost, thanks to standards which must be verified for conformance to codes and regulations.

These require product and systems testing conducted, for the most part, by commercial testing laboratories or by laboratories approved or recognized through accreditation programs conducted by Federal, State and local governments or in the more than 50 private professional and trade organization laboratory accreditation systems.

There are literally thousands of testing laboratories in the United States, very competitive and all seeking approval or accreditation to perform tests or evaluation. Government procurement, private purchasing agents and regulatory agencies constantly seek out well qualified testing labs to verify conformance of products to standards.

Unlike the field of standards where the U. S. has a national coordinating organization in the private sector and many government agencies who conduct standards programs, including the National Institute of Standards and Technology, there is *no single focal point organization, government or private for testing, certification, accreditation and related functions.* In fact, the problem is quite often that there are competitive, conflicting and special interest groups conducting certification and accreditation programs with little knowledge or interest in any efforts outside their scope. Conflicting and costly advice often results.

The U. S. needs a focal point in government to coordinate, list, evaluate, accredit and audit testing, certification and accreditation programs in the public interest. Such an organization should be able to gather, analyze, and distribute information on U. S. private and government programs and provide evaluation reports as to their conformance to standards and codes of good practice.

The international trade aspects of the U. S. lack of coordination and focus are enormous and growing. The program of the European Communities (EC) to develop an internal market devoid of trade barriers, with uniform standards, and regulation was at first blush very encouraging to the United States. We liked the idea of aiming our trade at one set of requirements rather than 12. As things moved along, however, and EC 1992 turned from its new standards directives to what they labeled the Global Approach to Testing and Certification, we became very aware that we (the United States) lacked even the single focal point in our government to negotiate with the EC (government to government) and to which the EC could turn for dialogue and action on reciprocity, acceptance of manufacturers declaration of conformance to standards, or for acceptance of test results and data. We also lack, at present, the agreement of the EC on a number of contentious points such as authority for U. S. laboratories to test products in the U.S. to gain access to European markets.

Suffice it to say that every participant in the investigation, every testing and certifying body we contacted, and our government trade representatives, have placed high priority on early development of a U. S. Government focal point to negotiate agreements with the EC on a government to government basis and support the private sector in its counter part dealings.

The Congress may go one of two ways in establishing a focal point organization. It may, after obtaining information and advice through hearings, enact legislation creating an independent government agency or, as the participants in this study prefer, it can create a quasi-government corporation to perform the functions.

While we abhor the delay, it would be well to seriously consider first establishing a National Commission with a Congressional Charter. The Commission would perform virtually the same type of studies and investigations as the recommended National Commission on the U. S. Standards System. The major differences are the complex and often controversial and competitive nature of testing, certification and accreditation, and, the fact that no focal point exists.

The assistance of the U. S. Department of Commerce and perhaps one or more government regulatory and procurement agencies will be essential to the success of the Commission. They could cooperate in calling together key elements and players in testing, certification and accreditation (private and public). The elements of quality assurance registration should also be included. Dialogue between these groups with someone like Commerce seeing that progress is made concerning agreement on a government focal point, is important enough to warrant a year's delay (for the study) and the effort and resources which will be required.

It is very difficult for an individual who has spent an entire working career in the legislative, and executive branches of government and 30+ years in voluntary organization management to come forward with a set of recommendations calling for an expanded role for government in two vital areas; Standards and the combined functions of Testing, Certification and Accreditation. The events of the past two or three years have however greatly accelerated my recognition and firm belief that the U. S. has, at last, reached the plateau of industry-government sophistication that will encourage us to put in place the type of pragmatic organizational structure that will serve our national and international requirements for these esssential functions.

Donald Peyton
March 1990

NIST-114A
(REV. 3-89)

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

BIBLIOGRAPHIC DATA SHEET

1. PUBLICATION OR REPORT NUMBER
NIST-GCR-90-572

2. PERFORMING ORGANIZATION REPORT NUMBER

3. PUBLICATION DATE
MARCH 1990

4. TITLE AND SUBTITLE

Conduct and Administration of U.S. Participation and Leadership in International Standardization, Testing, and Certification in the Decade of the 1990s

5. AUTHOR(S)

Donald L. Peyton

6. PERFORMING ORGANIZATION (IF JOINT OR OTHER THAN NIST, SEE INSTRUCTIONS)

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
GAITHERSBURG, MD 20899

7. CONTRACT/GRANT NUMBER

8. TYPE OF REPORT AND PERIOD COVERED

9. SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS (STREET, CITY, STATE, ZIP)

National Institute of Standards and Technology
Gaithersburg, MD 20899

10. SUPPLEMENTARY NOTES

☐ DOCUMENT DESCRIBES A COMPUTER PROGRAM; SF-185, FIPS SOFTWARE SUMMARY, IS ATTACHED.

11. ABSTRACT (A 200-WORD OR LESS FACTUAL SUMMARY OF MOST SIGNIFICANT INFORMATION. IF DOCUMENT INCLUDES A SIGNIFICANT BIBLIOGRAPHY OR LITERATURE SURVEY, MENTION IT HERE.)

Based on 22 years' experience in domestic and international standards activities, the author reviews the evolution of the U.S. standards system. The study addresses new factors in considering the future roles of the U.S. Government and the private sector to improve the present health and efficacy of our national approach to standardization, testing, certification, quality assurance, and laboratory accreditation. The consensus view is to separate standardization from other related activities, and for strong governmental participation in private sector policy, planning and programs where there is a substantial public interest. Congressional action is recommended to establish an infrastructure to deal with complex testing and certification issues affecting trade competition, probably in the form of a quasi-governmental corporation. Two National Commissions should be established for separate study of standardization and of testing, certification, and related areas.

12. KEY WORDS (6 TO 12 ENTRIES; ALPHABETICAL ORDER; CAPITALIZE ONLY PROPER NAMES; AND SEPARATE KEY WORDS BY SEMICOLONS)

certification; quality assurance; standards; testing; trade

13. AVAILABILITY

☒ XX UNLIMITED
☐ FOR OFFICIAL DISTRIBUTION. DO NOT RELEASE TO NATIONAL TECHNICAL INFORMATION SERVICE (NTIS).
☐ ORDER FROM SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, DC 20402.
☒ XX ORDER FROM NATIONAL TECHNICAL INFORMATION SERVICE (NTIS), SPRINGFIELD, VA 22161.

14. NUMBER OF PRINTED PAGES
17

15. PRICE
A02

ELECTRONIC FORM